

What is claimed is:

5 1. A high frequency power amplifier, comprising:
a transistor for amplifying signals; and
an input-side impedance matching circuit connected to an input side of said transistor,

10 wherein said input-side impedance matching circuit makes impedance substantially open load with respect to even number order higher harmonics of a fundamental wave of a high frequency signal.

15 2. The high frequency power amplifier according to claim 1, wherein a phase angle of reflection of a second higher harmonic is 0 to 90 degrees, and a quantity of reflection is 0.6 to 1.0, with respect to a reflection coefficient when said input-side impedance matching circuit is viewed from a direction of an input end of said transistor.

20 3. The high frequency power amplifier according to claim 2, wherein said input-side impedance matching circuit comprises a third higher harmonic reflecting circuit, a second higher harmonic processing circuit, and a fundamental wave matching circuit, disposed sequentially from a side of a signal input terminal.

25 4. The high frequency power amplifier according to claim 1, wherein said input-side impedance matching circuit comprises a third higher harmonic reflecting circuit, a second higher harmonic processing circuit, and a fundamental wave matching circuit, disposed sequentially from a side of a signal input terminal.

30 5. A high frequency power amplifier, comprising:
a transistor for amplifying signals; and
an input-side impedance matching circuit connected to an input side of said transistor,

wherein said input-side impedance matching circuit makes impedance substantially short-circuit load with respect to odd number order higher harmonics of a fundamental wave of a high frequency signal.

5 6. The high frequency power amplifier according to claim 5, wherein a phase angle of reflection of a third higher harmonic is 110 to 270 degrees, and a quantity of reflection is 0.6 to 1.0, with respect to a reflection coefficient when said input-side impedance matching circuit is viewed from a direction of an input end of said transistor.

10 7. The high frequency power amplifier according to claim 6, wherein said input-side impedance matching circuit comprises a third higher harmonic reflecting circuit, a second higher harmonic processing circuit, and a fundamental wave matching circuit, disposed sequentially from a side of a signal input
15 terminal.

20 8. The high frequency power amplifier according to claim 5, wherein said input-side impedance matching circuit comprises a third higher harmonic reflecting circuit, a second higher harmonic processing circuit, and a fundamental wave matching circuit, disposed sequentially from a side of a signal input
25 terminal.

9. A high frequency power amplifier, comprising:

a front stage transistor;

25 a rear stage transistor; and

an inter-stage impedance matching circuit connected between said front stage transistor and said rear stage transistor for matching impedances,

wherein higher harmonics generated in said front stage transistor is inputted into said rear stage transistor, and a higher harmonic load of said rear
30 stage transistor is adjusted by said inter-stage impedance matching circuit.